

RECLAMATION

Managing Water in the West

Refuge Water Supply Program

U. S. Bureau of Reclamation

U. S. Fish and Wildlife Service

In cooperation with California Department of Fish and
Game and Grassland Resource Conservation District



U.S. Department of the Interior
Bureau of Reclamation

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Refuge Water Supply Program Managers and Specialists

Dale Garrison, USFWS
Refuge Water Supply Coordinator

Dan Meier, Reclamation
Fish and Wildlife Program Manager

Neal Niven, Reclamation
Construction Project Manager

Sonya Nechanicky, Reclamation
Refuge Water Supply Program Specialist

Mona Jefferies-Soniea, Reclamation
Construction Project Manager

Pam Hodapp, Reclamation
Assistant Fish and Wildlife Coordinator

Georgina Gregory, Reclamation
Water Acquisition Program Specialist

Refuge Water Supply Program CVPIA 3406 (d)



Provide firm water supplies of suitable quality to
maintain and improve wetland habitat areas on
certain Central Valley wildlife refuges

Refuge Water Supply Program CVPIA Workplans



Water Acquisition Program

CVPIA Sections 3406 (b)(3), (d)(2) and (g)

Conveyance Program

CVPIA Sections 3406 (d)(1), (2) and (5)

San Joaquin Basin Action Plan Refuge Facilities Construction

CVPIA Section 3406 (d)(5)

Refuge Water Supply Facilities Construction Program

CVPIA Section 3406 (d)(5)

West Sacramento Group

Sacramento National Wildlife Refuge

Delevan National Wildlife Refuge

Colusa National Wildlife Refuge

East Sacramento Group

Gray Lodge Wildlife Area

Sutter National Wildlife Refuge

Action Plan Lands

North Grasslands Wildlife Area

San Luis National Wildlife Refuge

Volta Wildlife Area

Los Banos Wildlife Area

Grassland Resource Conservation District

Merced National Wildlife Refuge

Mendota Wildlife Area

South San Joaquin Group

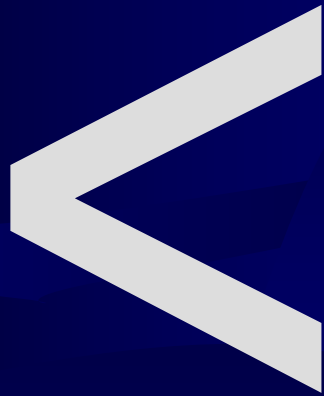
Pixley National Wildlife Refuge

Kern National Wildlife Refuge



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Total
Level
4



Incremental
Level 4

Level 2

2005 Program Budgets

- **Water Acquisition
(Incremental Level 4) - \$10.4 Million**
- **Conveyance (Level 4) - \$7.8 Million**
- **Facilities Construction -\$10.5 Million**
 - SJBAP (East Bear)
 - Other Refuges (Gray Lodge, Pixley & Mendota)

Total \$28.7 Million



Interagency Participants

- **Reclamation and USFWS**
- **Interagency Refuge Water Management Team (IRWMT)**
 - Includes CDFG and Grassland RCD
 - Annual refuge water allocations
 - Monthly delivery schedules
 - Water management plans
- **Central Valley Joint Venture Water Committee**



Water Acquisition Program (Refuge Water Supply)



Water Acquisition Program Goals and Objectives



- Provide supplemental water supplies (Incremental Level 4) for refuges for critical wetland habitat supporting resident and migratory waterfowl
- Acquire and manage instream flows for VAMP
- Acquire instream flows to improve fish habitat in support of AFRP

Incremental Level 4 Requirements

Refuges	Incremental Level 4 Requirement
Sacramento Valley	27,750 (12,650)*
San Joaquin Valley	103,014 (91,806)*
Totals	130,764 (104,456)*
Estimated Water To be Acquired (assumes 10% losses)	145,293 (116,062)*

*Maximum deliveries under current conveyance
constraints

Incremental Level 4 Acquisitions 1994 - 2004

Water Year (Mar-Feb)	Incremental Level 4 Acquisitions (acre-feet)	CVPIA Required Incremental Level 4 Deliveries (% of 130,764)	CVPIA Required Incremental Level 4 Deliveries (acre-feet)	Incremental Level 4 Acquisition Success Rate (%)
2004	74,010	100	130,764	57
2003	76,300	100	130,764	58
2002	91,690	100	130,764	70
2001	69,305	90	117,688	59
2000	74,048	80	104,611	71
1999	49,918	70	91,535	55
1998	6,300 ²	60	78,458	8
1997	69,800	50	65,382	100
1996	36,395	40	52,306	70
1995	88,009	30	39,229	100
1994	30,356	20	26,153	100
1993	0	10	13,076	0

²6,300 AF long-term water acquired in 1998.

Water Acquisition Program Accomplishments 2005

- To date, nine agreements are in process to acquire approximately 49,000 AF
- Currently, negotiating additional agreements to provide 23,000 AF



Water Acquisition Program - Key Incremental Level 4 Constraints

- Inadequate Funding
- Price of Water
- Water Quality
- Pumping Capacity
- Storage
- Conveyance Infrastructure



Refuge Conveyance



Conveyance Program Objective



- Provide long-term, firm and reliable water deliveries to certain Federal, State and private wildlife refuges in the Central Valley

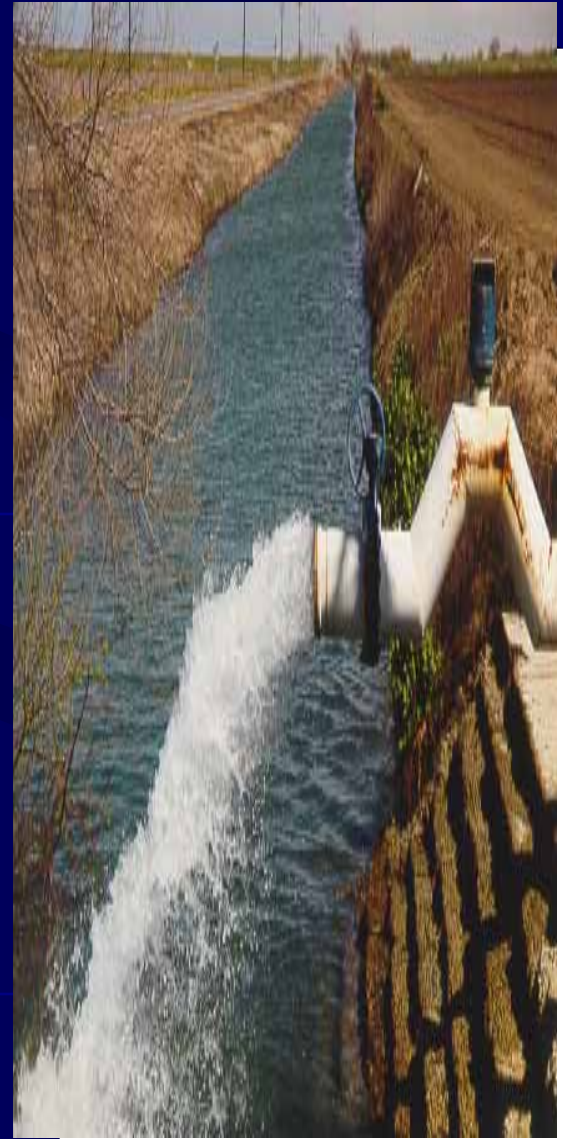
Cooperative Conveyance Agreements

- **Cooperative Agreements**
 - Contracts with local and State entities to deliver water
 - Pay per AF water wheeled
 - Nine long-term – complete
 - Three new out-year agreements for Sutter, Pixley, and Mendota



Conveyance Program Accomplishments 2004

- Approximately 385,000 AF of Level 2 and 74,000 AF of Incremental Level 4 were conveyed



Conveyance Program Accomplishments 2005

- Approximately 425,000 AF of Level 2 and 72,000 AF of Level 4 to be conveyed
- Executed long-term conveyance agreement with DWR



Conveyance Program

Future Activities



- Conduct water quality monitoring studies
- Completion and implementation of Refuge Database Program

Facilities Construction for Refuge Water Supply



Facilities Construction Program

Goals and Objectives



- Provides infrastructure to support water deliveries to Federal and State Wildlife Refuges in the Central Valley of California
- Refuges are Gray Lodge, Sacramento, Delevan, Colusa, Sutter, Kern, Pixley and Mendota

West Sacramento Group

Sacramento National Wildlife Refuge

Delevan National Wildlife Refuge

Colusa National Wildlife Refuge

East Sacramento Group

Gray Lodge Wildlife Area

Sutter National Wildlife Refuge

Action Plan Lands

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San Luis National Wildlife Refuge

Volta Wildlife Area

Los Banos Wildlife Area

Grassland Resource Conservation District

Merced National Wildlife Refuge

Mendota Wildlife Area

South San Joaquin Group

Pixley National Wildlife Refuge

Kern National Wildlife Refuge

Bakersfield

Los Angeles

San Diego



Facilities Construction Program - Accomplishments

- **West Sacramento Valley**
 - Sacramento, Delevan and Sutter -GCID facilities improvements-**complete**
- **East Sacramento Valley**
 - Environmental Compliance - **complete**
 - Gray Lodge -Biggs West Gridley – implementation underway
- **Mendota**
 - Environmental Compliance on-going
- **South San Joaquin**
 - Pixley -Delano-Earlimart ID facilities with improvements – **implementation pending**
 - Kern NWR **complete**

Facilities Construction Schedules and Costs

Refuge	Projected Completion Date	Construction Costs (Millions \$)
Gray Lodge	2006/2007	5
Pixley	2009	11
Mendota	2010	3
Sutter	2012	7

Kern Facilities Completed

- Cross Channel
- West side Channel



Cross Channel Creek Pre-Construction



Cross Channel Creek Post-Construction



Westside Channel Pre-Construction



Westside Channel Post-Construction



San Joaquin Basin Action Plan



SJBAP Facilities Construction Program Objectives



- Planning, design and construction of conveyance facilities
- Includes North Grasslands, San Luis, Volta, Los Banos, and Grassland RCD

West Sacramento Group

Sacramento National Wildlife Refuge

Delevan National Wildlife Refuge

Colusa National Wildlife Refuge

East Sacramento Group

Gray Lodge Wildlife Area

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South San Joaquin Group

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Kern National Wildlife Refuge



SJBAP Facilities Construction

- Kesterson Mitigation
- SJBAP Began in 1987
- SJABP Incorporated in CVPIA



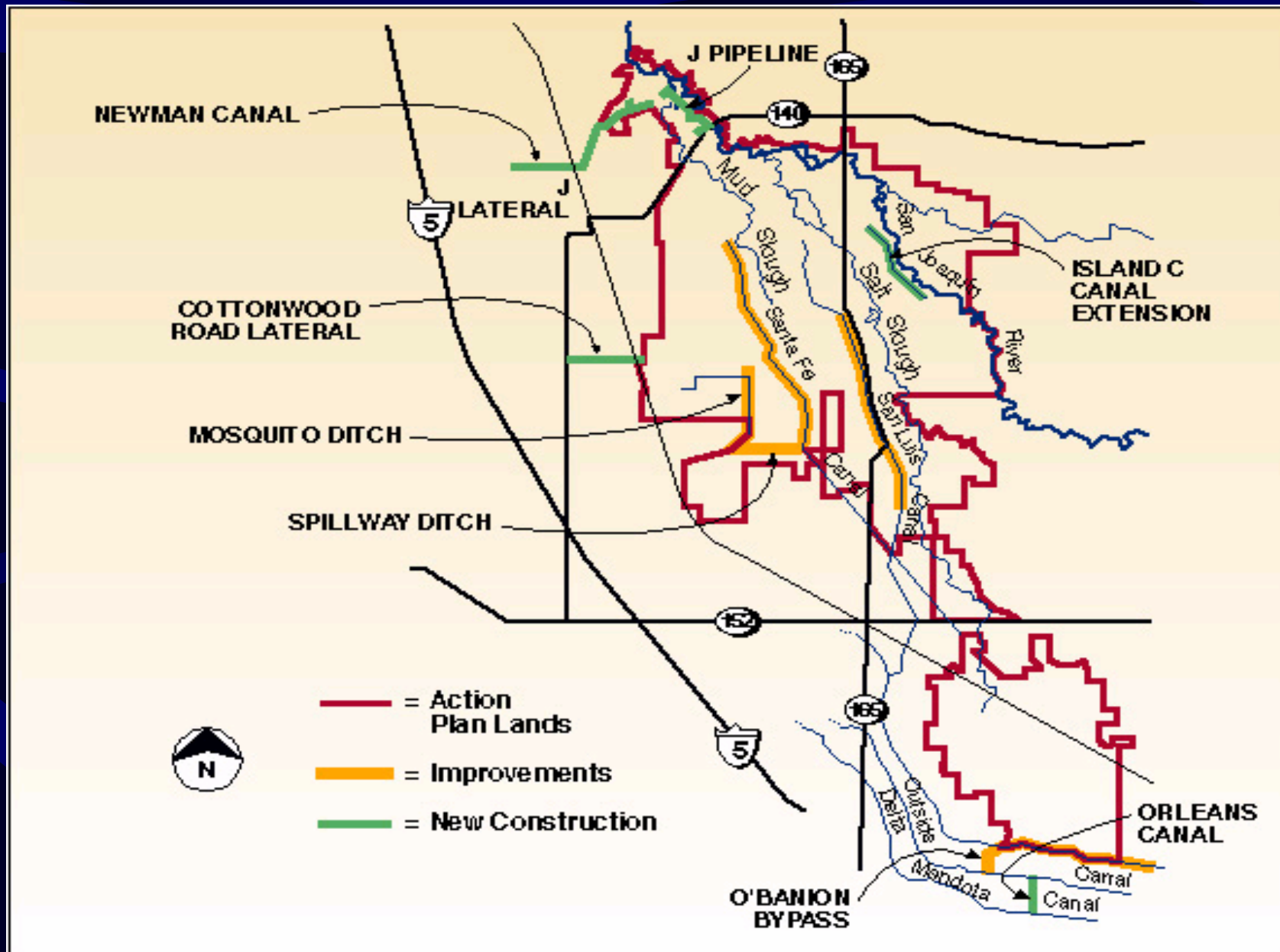
SJBAP Facilities Construction Accomplishments

Facilities Modifications

- San Luis Canal Company
- Grassland Water District
- Central California Irrigation District
- Reclamation Facilities



San Joaquin Basin Action Plan



East Bear Creek Refuge



SJBAP Facilities Construction Accomplishments 2005

East Bear Creek Unit

- Complete Final Design
- Out to Bid
- \$7.5 Million



SJBAP Facilities Construction Future Activities

- East Bear Unit Construction
- Construction of Orleans Canal



CVPIA Refuge Biological Benefits

- **Year-around water supplies**
 - Maintenance flows
 - Brood Habitat
 - Late Summer/Early Fall Habitat
 - Riparian Habitat
 - Food Crop Irrigations
- **Reliable water supplies year to year**
 - Accurate Habitat Management Evaluations
 - Long-Term Management Planning
- **Water for on-refuge restoration projects**
 - Increased hunting opportunities
 - Increase in diversity of wildlife species use

Biological Benefits-Pixley NWR

➤ Since CVPIA, a dramatic increase in sandhill crane use at Pixley NWR:

- 200 in 1992
- 2,000 in 1993
- 5,100 in 2001



Biological Benefits – Grassland RCD

Swamp Timothy Irrigations - An increase in yearly irrigated acreage.

1991-1992 : 4,000 acres

1993-today: 26,000 acres



Biological Benefits – Grassland RCD

- **An increase of 3,000 acres of early fall habitat :**
 - **Shorebird increases of 49% from 1992 to 1993**
 - **Increase in mid-September waterfowl numbers by over 300%**



Biological Benefits – San Luis NWR Complex

- **Establishment of active great blue heron and egret rookeries along the San Joaquin River**



Biological Benefits – San Luis NWR Complex

- **Increase in habitat available for species such as the western pond turtle and the giant garter snake**



Biological Benefits – Sacramento NWR Complex

A reduction in avian disease –

Cholera outbreaks in 1991 and 1992

Only one serious outbreak since (1998)



Biological Benefits – Sacramento NWR Complex

**Spring and summer water provided by CVPIA improves
waterfowl brood health**



The Return of the White-faced Ibis



- **Kern NWR**
 - An increase from 50 birds in 1993 to 17,000 in 2004
- **Sutter NWR**
 - An increase from 100 birds documented in 1991 to 1,000 in 2000, 7,000 in 2001, and 15,000 in 2002



Water Acquisition Program

Instream Flows

- Acquire and manage instream flows for VAMP
- Acquire instream flows to improve fish habitat in support of AFRP

Water Provided for VAMP/SJRA by Water Acquisition Program

CONTRACTING ENTITY	CONTRACT QTY (af)	PRICE (per af)	REMARKS
San Joaquin River Group Authority	up to 110,000	\$4,500,000 ¹	Compensation for providing the VAMP pulse flow pursuant to the San Joaquin River Agreement.
San Joaquin River Group Authority	15,000	\$60 - \$70	Water acquired from Oakdale ID pursuant to the San Joaquin River Agreement.
San Joaquin River Group Authority	11,000	\$60 - \$70	Difference water acquired from Oakdale ID pursuant to the San Joaquin River Agreement.
San Joaquin River Group Authority	12,500	\$60 - \$70	Fall flows acquired from Merced ID pursuant to the San Joaquin River Agreement.

¹Escalated annually each January to reflect the CPI-U index. Cost for 2005 was \$4,529,483.60. State cost share \$1.334M each year.

QUESTIONS?

